

Insects

Boxelder Bugs and Red-Shouldered Bugs

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Boxelder bugs, *Boisea trivittata* (Say), are a nuisance, especially during the cool autumn months when they cluster in large numbers on the sides of trees, houses and other structures. This pest enters buildings through cracks and openings and spends the winter hibernating behind exterior siding and in attics, soffits, wall voids, window/door casings and similar protected areas. Boxelder bugs may also take refuge in soil and leaf litter next to foundations. With the onset of warmer weather in late winter and spring, these bugs become active and emerge from their overwintering sites. As they attempt to escape to their natural habitat outdoors, some inadvertently disperse inward into living areas, emerging from beneath baseboards, behind window and door frames, from within sash-cord openings and around light fixtures and ventilators. Large numbers also congregate on exterior foundations and siding, usually on the sunny (south/southwest) side of the building. Boxelder bugs do not damage buildings, clothing or food products, but may bite if handled carelessly. Indoors they may stain walls and curtains with brown fecal material and produce a foul odor when crushed.

Identification

Adult boxelder bugs are flat, about 1/2 inch long, 1/3 inch wide and dark brownish-black with three lengthwise red stripes on the pronotum (area behind the head). Wings are thick and leathery at the base and membranous at the tip. There are red veins in the wings; the abdomen is bright red under the wings (Figure 1). The nymphs resemble the adults in shape except they are smaller, wingless and bright red. Eggs are red (Figure 2). Boxelder bugs are found throughout the state.

It has recently come to our attention that another bug, the red-shouldered bug, *Jadera haematoloma* (Herrick-Schaffer), has been confused with boxelder bugs. Red-shouldered bugs lack the central red stripe on the pronotum and the red stripes on the wings (Figure 3). Extension specialists report red-shouldered bugs from Davidson, Knox, Rutherford and Williamson counties, but these bugs are presumed to be elsewhere in the state.

Both red-shouldered bugs and boxelder bugs are native to the United States.

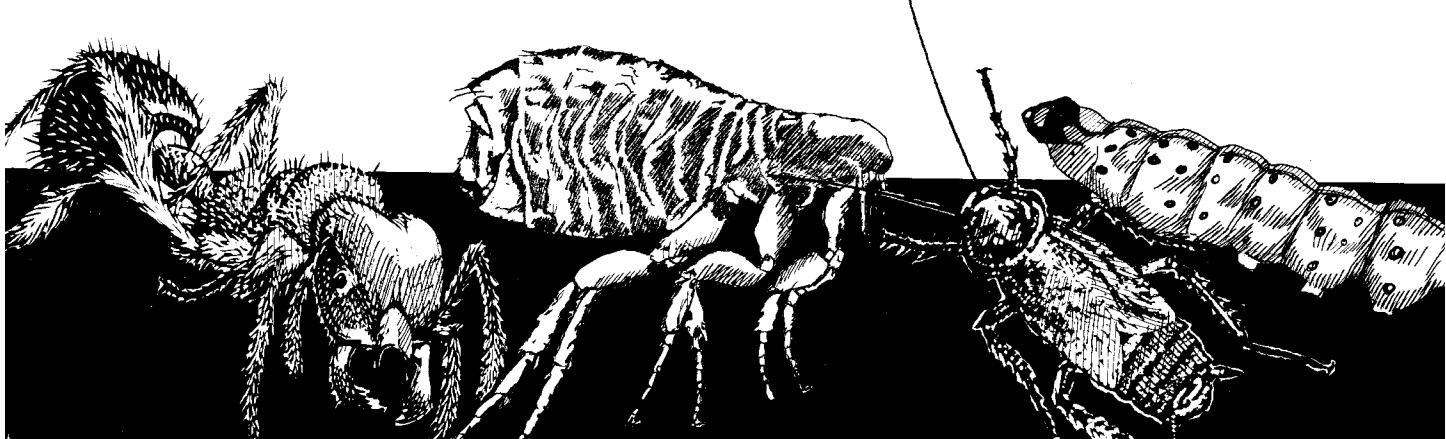




Figure 1. Adult boxelder bug. Boxelder bugs feed primarily on the seed-bearing boxelder trees by sucking sap from the leaves, tender twigs and developing seeds. Occasionally, they have been observed feeding on silver maple, other maples, ash, plum, cherry, apple, peach and grape, causing some scarring or dimpling of fruits. (Credit: E&PP, UT)



Figure 2. Red boxelder bug eggs on a boxelder samara. (Credit: E&PP, UT)



Figure 3. Adult red-shouldered bug. In Tennessee, red-shouldered bugs have been found feeding on seeds of goldenrain tree; however, at this time, we are uncertain of all the plants on which this bug may feed. (Credit: E&PP, UT)

Life Cycle and Habits

In early autumn, adult and large nymphal boxelder bugs congregate in large numbers, primarily on the bark of boxelder trees, and then begin migrating to a place for overwintering. Only adults overwinter, moving to hibernation sites either by crawling or flying.

These insects hide in cracks and crevices in walls, in door and window casings, around foundations, in stone piles, in tree holes and in other protected places. On warm days during winter and early spring, they sometimes appear on light painted surfaces outdoors on the south and west sides of the house, resting in the sun.

Overwintering adults leave their hibernating quarters with the coming of warm weather, and females begin laying eggs in crevices of tree bark and on other objects near host plants. Eggs begin to hatch after 14 days. Nymphs appear about the same time buds break and new leaves emerge. In July, new adults lay eggs that result in a second generation by early autumn.

Boxelder bugs feed primarily on the seed-bearing boxelder trees by sucking sap from the leaves (Figure 4), tender twigs and developing seeds (Figure 5). Occasionally, they have been observed feeding on silver maple, other maples, ash, plum, cherry, apple,



Figure 4. Boxelder compound leaves. (Credit: PS&LS, UT)



Figure 5. Boxelder seed panicle with close up of samara (inset). (Credit: PS&LS, UT)

peach and grape. Feeding injury results in some scarring or dimpling of fruits. However, boxelder bugs seldom develop in large enough numbers to become a nuisance unless able to feed on pod-bearing boxelder trees. Apparently, they do little feeding damage to boxelder trees.

In Tennessee, red-shouldered bugs have been found feeding on seeds of goldenrain tree; however, reports from Texas, Florida and Oklahoma indicate red-shouldered bugs may also be found in large numbers on chinaberry and western soapberry. Because red-shouldered bugs have been confused with boxelder bugs, we are uncertain of all the plants on which they may feed. They may also suck juices from fruits of thornless common honeylocust, plum, cherry, apple and grape.

Control Measures

Outdoors — Host removal

Because boxelder bugs breed on female boxelder trees, removal of these trees may reduce nuisance populations. Correct identification of the nuisance bug is important to prevent removal of the incorrect host. While removal of a volunteer boxelder tree may be considered when boxelder bugs are the pest, it would be a shame to remove a valued landscape plant such as a goldenrain tree unnecessarily. If boxelder trees are desirable for shade, ornamental beauty or other purposes, nursery producers should propagate them by taking cuttings only from male trees.

Outdoors — Exclusion and Sanitation

Be sure to repair and close openings where boxelder bugs can enter the house before bugs start moving off their host in the fall. Exclude pests with tightfitting doors, windows and sealed walls. This may involve adding door sweeps, adding weatherstripping to sliding glass doors and windows, caulking openings in window frames, repairing holes in screens, adding screens, etc. If you are unsure whether a door fits tightly, observe the door from the outside when it is dark and an interior light is on. If light is seen around the edges of the door, then it doesn't have a good seal. Seal cracks, crevices and holes in the foundation. Screen vent openings in foundation walls and attic. Caulk or seal holes in outside walls, eaves and other external surfaces. Many pests use wires, pipes, tree limbs and other guidelines to help them move from one area to another. Voids around pipes can be sealed with steel wool or copper gauze (which won't rust) and expandable foam. See Extension PB 1303, **Managing Pests Around the Home**, for more details on excluding pests.

Eliminate potential hiding places, such as piles of boards, rocks, leaves, grass and other debris close to the house. Rake leaves, mulch and grass away from the foundation, especially on the south and west sides of the structure.

Outdoors — Removing Bugs by Vacuuming

A wet/dry vacuum cleaner can be used to remove large numbers of these insects. Vacuum the bugs into a soapy water mixture (one teaspoon of a liquid household detergent per gallon of water). The bugs will drown quickly in the soapy water.

Outdoors — Insecticides on Trees

Inspect boxelder and other host plants during spring and early summer for young, exposed boxelder bugs and treat to prevent potentially large populations and indoor migrations in the autumn. This is best done by a professional. Consideration should also be given to whether infested trees are on a neighbor's property, since the adults often fly to nearby buildings to overwinter. Spray applications of bifenthrin, cyfluthrin and carbaryl to tree trunks, limbs and foliage are effective. *Beauvaria bassiana*, a fungus that attacks many species of insects, has been recently shown to kill boxelder and red-shouldered bugs.

Outdoors — Insecticides on Structures and Other Objects

Congregated populations of mature boxelder bugs, which may be found on foundation walls (see Figure 6 on back), sidewalks, fence rows, etc., may be killed with sprays of bifenthrin, permethrin or cyfluthrin. Professionals may use products containing cyfluthrin, permethrin, cypermethrin, bifenthrin, lambda-cyhalothrin and deltamethrin. According to anecdotal information, adding dish detergent to diluted insecticides (such as Demand CS) increases efficacy.

Indoors

Although most callers want immediate and complete relief, this simply is not possible. Because bugs are emerging from hidden areas that are mostly inaccessible to insecticides, setting off household foggers or "bug bombs" will not provide effective control of these pests.

Indoor control is often difficult because the bugs are scattered throughout the house. Boxelder bugs emit substances that can stain surfaces, making a broom less desirable. Use a vacuum cleaner to remove bugs indoors. Although we are not aware of allergies caused by exposure to boxelder bugs, it is best to use a vacuum with a HEPA filter to prevent insect parts from being circulated in the air. Upon completing the



Figure 6. Boxelder bugs massing on a foundation wall.
Immatures are red with black wing pads. (Credit: E&PP, UT).

vacuuming, vacuum cleaner bags should be placed in a plastic bag and the bag sealed. The bugs can then be destroyed or the sealed plastic bag can be placed in a tightly-sealed outdoor garbage can.

Sources

More 'Bugs' Appearing in Buildings. M. Potter. 3/12/01. Kentucky Pest News.

Red-shouldered Bug. Field Guide to Common Texas Insects. Texas Agricultural Extension Service (<http://insects.tamu.edu/images/insects/fieldguide/aimg69.html>).

Boxelder Bug. W. Lyon. Ohio State University Extension Fact Sheet HYG-2106-94. <http://www.ohioline.osu.edu/hyg-fact/2000/2106.html>

Jadera scentless plant bugs in Florida (Hemiptera: Rhopalidae). Mead, F.W. 1985. Entomology Circular No. 277, Florida Department of Agriculture & Consumer Services.

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store, or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label. Persons who do not obey the law will be subject to penalties.

Disclaimer Statement

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticides registrations are continuously reviewed. Should registration of a recommended pesticide be canceled, it would no longer be recommended by the University of Tennessee. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

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